VOLUME 13 PART 6

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OF THE
QUEENSLAND MUSEUM

BRISBANE

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MAMMALS FROM SOUTH-WESTERN QUEENSLAND

George Mack

Queensland Museum

From May, 1957 to April, 1959, Mr. Ivor G. Filmer resided in the small township of Birdsville in south-western Queensland, about 1,000 miles west of Brisbane. Having had experience of museum work and methods of field collecting, he expressed a keen desire to collect for the Queensland Museum while in this distant part of the State. This was readily arranged, and the necessary equipment was provided.

Although very little spare time was available, he succeeded in collecting a good series of birds, insects and some mammals. The mammals included living specimens of *Dasyuroides byrnei*, *Macrotis lagotis*, and of the genus *Notomys*. These notes are for the purpose of recording the mammals received alive in Brisbane, and remarking upon the status of species of the genus *Notomys*.

I am grateful to Mr. I. G. Filmer for the valuable material obtained by him, to Dr. W. D. L. Ride of the Western Australian Museum for the loan of a series of *Notomys* for examination, and to the Director of the Queensland Institute of Medical Research for assistance in the provision of suitable food for the mammals. Members of the Queensland Museum staff have given able assistance. D. P. Vernon has supervised the care of the mammals in captivity, kept a record of breeding and checked the period of gestation; Rhyl Jones has prepared the drawings of two species of *Notomys*; and Stanley Breeden has been responsible for all photographs.

BIRDSVILLE AND DISTRICT

All material was collected in the vicinity of Birdsville, near the Diamantina River, south-western Queensland. The district is poor grazing country, embracing sand plains, gibber plains and sandhills. The average annual rainfall is 8 inches, but drought conditions have prevailed from 1957 to the present. During this period, introduced stock as usual has been seriously affected, but the few native mammals received alive were unaffected in bodily condition, although possibly breeding was on a reduced scale. The habit of all three genera of living in underground burrows during daylight hours, when temperatures are usually high, doubtless has contributed to their wellbeing.

DASYUROIDES BYRNEI Spencer

(Figures 1 and 2)

Dasyuroides byrnei Spencer, Rept. Horn Scient. Exped. Cent. Aust., Zool., 1896, 2, p. 36.

Dasyuroides byrnei pallidior Thomas, Ann. Mag. Nat. Hist., 1906, (7) 17, p. 330.

Eleven specimens of this species, 9 males and 2 females, were collected alive at Birdsville and forwarded by I. G. Filmer. This appears to be the third occasion on which *D. byrnei* has been collected. Seven specimens, 6 males and 1 female, were first obtained by P. M. Byrne in 1895 near Charlotte Waters, Central Australia, and sent to Spencer in Melbourne. This was the material on which Spencer erected a new genus and species. The second record was a single specimen collected by H. J. Hillier at Killalpininna, to the east of Lake Eyre, South Australia. This example was sent to the British Museum and Thomas described it as a new subspecies. The present and third record of the species is the first occasion on which specimens of both sexes have been obtained alive.

Figure 1. *Dasyuroides byrnei* Spencer. Male.

Figure 2. *Dasyuroides byrnei* Spencer. Female with five young born in captivity. All in characteristic attitude adopted when much disturbed.

There is very little to add to the description and figures provided by Spencer. It can be stated that the ears are not naked above; they are covered with short, white hairs. The hairs on the ventral surface of the head also are short and white, while those of the remainder of the ventral surface are much longer (10 mm.), and they are white with readily seen grey bases. Dorsally, the fore part of the head is pale smoke grey with some darker hairs in the midline forming a stripe. From the level of the eyes to the base of the tail the dominant tone is about tawny olive, becoming paler laterally. The proximal half of the tail is ochraceous buff to light ochraceous buff, giving way in the distal half to long black hairs forming a brush.

Immature specimens, in addition to being smaller in all dimensions, differ from mature specimens in that the colour of the dorsal surface is about drab-grey, paler laterally and tinged tawny-olive only posteriorily. The proximal half of the tail is about pale smoke-grey, lacking the ochraceous-buff of mature individuals.

It is quite evident that the specimen which Thomas described as a new subspecies (*D. b. pallidior*) was an immature male. The remark by Thomas that the bullae in males of *Dasyuroides* are larger than those of females is not borne out by the series available to me.

It is of interest that this species is breeding freely in captivity, mainly from May to October. The number of mammae is six, but the usual number of young observed is five, although one female reared six young, three males and three females. There is a tendency for some females to destroy one or more of their young, especially early in development. This may be caused by the captive conditions, and possibly the difference in the food provided. The provision of suitable food affords some difficulty. They will take finely cut fresh beef, but tend to lose condition on this diet. Every effort is made to feed live mice, meal worms, and any large insects available. Females with young receive special consideration in this matter.

As these mammals are nervous, readily excited, quick of movement and nocturnal in habit, it is difficult to handle them and this has been almost entirely avoided. When a pair has been placed together in a cage, copulation has been observed and a careful check has shown the period of gestation to be 32 days. Where a check of this nature has not been made, and the pair have been allowed to remain in the same cage, it has been found advisable to remove the male when the young are born.

At birth, the young measure 4 mm., at sixteen days 11 mm., and at 31 days 15 mm. These measurements were taken by means of dividers while the young were in the natural curved attitude and attached to the nipples in the pouch area. Specimens are mature in all respects at the end of twelve months.

Measurements (millimeters).—Seven adult males from Birdsville, south-western Queensland. Head and body, 178–207 (192·2); tail, 139–147 (141·7); ear, 23–25 (23·8); pes, 40–43 (41·1).

Two adult females from Birdsville, south-western Queensland. Head and body, 187–195; tail, 139–140; ear, 24–25; pes, 38–40.

Two immature males bred in captivity. Head and body, 152–156; tail, 109–118; ear, 21–22; pes, 37–37.

MACROTIS LAGOTIS (Reid)

(Figures 3 and 4)

Perameles lagotis Reid, Proc. Zool. Soc. (Lond.), 1836, p. 129.

Four specimens of the rabbit-bandicoot were received from the Birdsville area, three in the live state and one as a cabinet skin. All are males, and of the three forwarded alive, one has since been prepared and mounted for display and the other two are still alive in captivity. The cabinet skin, the mounted specimen and one of the live examples are similar in size and appear to be fully mature. The other living specimen, however, was small in size when received, and although it has shown considerable development over the past three years, it is still smaller in all dimensions compared with the other specimens.

This seemingly long period of growth may be significant as a number of subspecies of *M. lagotis* have been described based mainly on size. If a representative series of the species was available from the wide, arid inland of Australia, it is probable that most, possibly all, of the subspecies would have to be rejected.

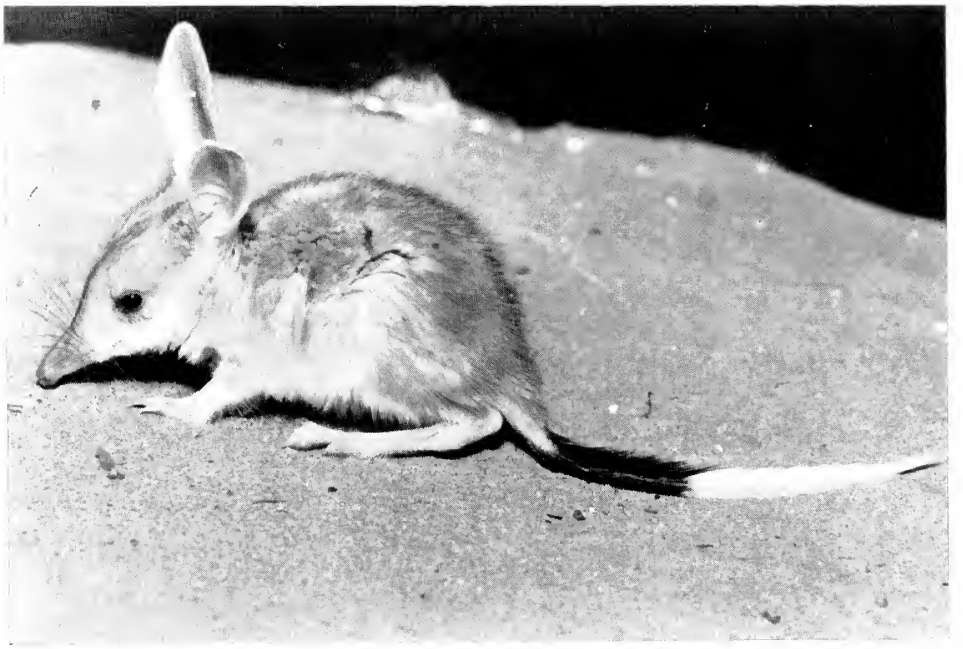

Figure 3. *Macrotis lagotis* (Reid). Young male.

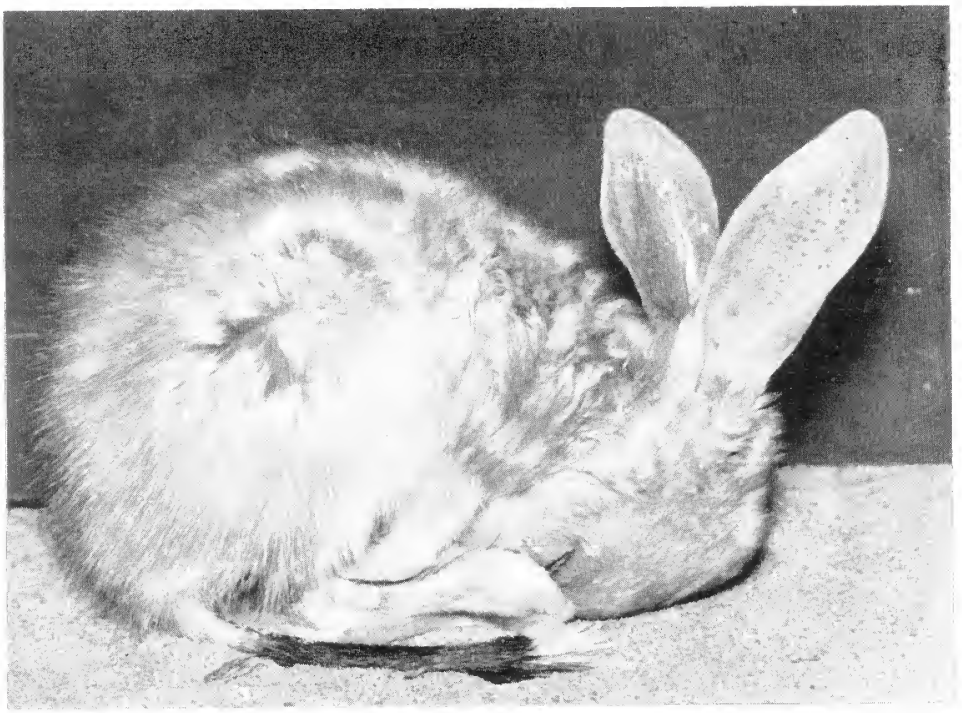

Figure 4. *Macrotis lagotis* (Reid). Young male asleep.

The general colour of the head and body in mature specimens is cinnamon-drab over white on the dorsal surface and white ventrally. The hairs above have long grey bases, followed by a band of white and tipped cinnamon-drab, except those in the mid-dorsal area posteriorly which are tipped fuscous black. The hairs covering the base of the tail above are mainly white with a band of cinnamon-drab and long white tips. This is followed by an area (about 100 mm.) of black hairs encircling the tail and in turn by a similar area (about 130 mm.) of white hairs to the end. Both black and white hairs are markedly elongated above. The hairs of the under surface, the hands and feet are white throughout. The upper part of the fore-limbs anteriorly and the upper part of the hind limbs posteriorly are greyish.

It is worthy of note that the smaller-sized specimen already mentioned was a general pale grey colour above when received. It is now similar in colour, suffused with cinnamon-drab, as the mature specimens, but it has not yet attained to their dimensions.

Measurements of cabinet skin (millimeters).—Head and body, 395; tail, 280; pes, 102; ear, 76.

Genus **NOTOMYS** Lesson

Six specimens of this genus were received alive, together with six preserved in spirit. The latter were accidentally killed in the process of collecting. The procedure was to visit the sandhills after dark, and with the aid of a torch and an insect net, endeavour to bring down the net over a specimen. As these small hopping mice can jump a few feet upwards or to one side it was inevitable that a few were hit by the rim of the net and killed.

The type of the genus *Notomys* is *Dipus mitchellii* Ogilby (1841), and as all specimens of *mitchellii* have a gular gland, *Ascopharynx* Waite (1900), based on this character, is a synonym. Waite (1897) also provided *Podanomalus* on the reduced number of pads in the hind feet of *Hapalotis longicaudatus* Gould. This species lacks the throat gland, but it has a small sternal gland. Brazenor (1934) made use of this genus for *longicaudatus* and a new species (*P. aistoni*), both of which have small sternal glands, while lacking throat glands. In general, the division into two genera has not been viewed favourably, and it seems desirable at present to refer all Australian hopping mice to the single genus *Notomys*.

When first examined, the material from Birdsville appeared to comprise 9 specimens of *N. cervinus* (Gould) and 3 specimens of *N. aistoni* (Brazenor). As then understood, I considered that the main external characters of *cervinus* were the pale cinnamon buff of the dorsal surface, pure white ventral surface, and the presence of a distinct gular gland. Compared with this, *aistoni* of Brazenor differed in the general greyish colour of the dorsal surface, white with grey bases to the fur of the ventral surface, and the presence of a small, raised, sternal gland instead of a gular gland. In addition, there are distinct differences in the skulls of the two forms.

However, Finlayson (1939) had expressed the view that *aistoni* was a synonym of *cervinus*. Tate (1951), who had examined the type material in the British Museum, concurred in this view, and more recently, Finlayson (1960) has confirmed his previously expressed opinion on this matter.

A specimen of what I then believe to be *cervinus* and one of *aistoni* were sent to the British Museum for comparison with Gould's type of *cervinus*. John Edwards Hill of that museum has kindly informed me that my specimen of *aistoni* agrees with the type of *cervinus* Gould, thus confirming the action of Finlayson and Tate.

This decision means that the 9 specimens which I previously believed to be *cervinus* represent a new species. They cannot be consigned to any known species of the genus.

The want of sufficiently comprehensive collections has been, and continues to be, the cause of considerable uncertainty in the naming of forms of this genus. The Queensland Museum collections are limited, but it has been necessary by means of the material available, together with the literature, to come to some conclusions, and however tentative, I propose briefly to record the views at which I have arrived.

The last reviewer of the genus, Tate (1951), listed 12 species; I propose six species. Four of the six have gular glands, but no sternal glands; they are *N. mitchellii*, *N. alexis*, *N. amplus* and *N. filmeri* sp. nov. Two have sternal glands, but no gular glands; they are *N. cervinus* and *N. longicaudatus*.

NOTOMYS MITCHELLII (Ogilby)

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Dipus mitchellii Ogilby, Trans. Linn. Soc. (Lond.), 1841, 18, p. 130.

Notomys mitchellii macropus Thomas, Ann. Mag. Nat. Hist., 1921, (9) 8, p. 540.

Ascopharynx fuscus Wood Jones, Rec. South Aust. Mus., 1925, 3, p. 3.

Notomys mitchellii alutacea Brazenor, Mem. Nat. Mus. Viet., 1934, No. 8, p. 79.

This is comparatively dark-coloured form. The over-all colour dorsally is buffy brown to olive brown (Ridgway's Color Standards), becoming avellaneous laterally. The hairs of the ventral surface are white with grey bases.

The range appears to lie south of the central area of Australia, extending from the western mallee country of New South Wales and north-western Victoria west in similar country to between the 10 inch and 20 inch isohyet in Western Australia, and north-west to the vicinity of Shark Bay.

Thomas described *macropus* from a single skin, "considerably faded," and believed to be from Kangaroo Island. It would be difficult to refer any specimen to this subspecies, based as it was upon a single specimen in very poor condition and of uncertain locality. The measurements provided by Thomas do not differ from those of a series of *mitchellii* except in length of ear. In the series available, the ear varies from 18 mm. to 23 mm.; Thomas stated "ear (wet) 26."

Brazenor (1934) referred a specimen from the northern Mallee of Victoria, within the range of *N. m. mitchellii*, to *N. m. macropus*. The same author described a new subspecies, *N. m. alutacea*, from Ooldea in western South Australia where *N. m. mitchellii* is the common form. The association of two races of the same species in the same locality is unacceptable. Two of the lighter coloured specimens referred by Brazenor to *N. m. alutacea* have been examined, and I have little doubt that the skins have been prepared from partly bleached spirit specimens.

The type of *Ascopharynx fuscus* Wood Jones came from Ooldea, and when this form was described, Wood Jones held the view that of all the Australian hopping mice, *N. cervinus* (Gould) *alone* had a gular or throat gland. In describing *fuscus*, he believed that he was naming a second, much darker coloured, species with a gular gland. In this, Wood Jones was mistaken, and I have little doubt that his *fuscus* was based on a specimen of *N. m. mitchellii* from Ooldea.

Finlayson (1960) made use of Wood Jones' name for two forms, *Notomys fuscus fuscus* from Ooldea, South Australia and *Notomys fuscus eyreius* from Mulka, South Australia.

NOTOMYS MITCHELLII GOULDII (Gould)

Hapalotis gouldii Gould, Proc. Zool. Soc. (Lond.), 1851 (1853), p. 127.

Hapalotis richardsonii Gould, Proc. Zool. Soc. (Lond.), 1851 (1853), p. 127.

Notomys macrotis Thomas, Ann. Mag. Nat. Hist., 1921, (9) 8, p. 538.

Notomys megalotis Iredale and Troughton, Checklist Mamm. Rec. Aust., 1934, p. 84 (New name for above).

There is no doubt that *gouldii* is no more than a reasonable subspecies of *N. mitchellii*. Specimens are considerably darker. The over all dorsal colour is about clove brown, and there is only a tinge of avellaneous laterally. Measurements of the two races are alike. The range of *gouldii* is a strip of country on both sides of the 20 inch isohyet, extending from the vicinity of King George's Sound north-west to just beyond the Moore River in Western Australia.

In naming *N. macrotis*, Thomas stated " It is readily distinguishable by its large and open palatal foramina " ; a very doubtful specific distinction.

NOTOMYS ALEXIS Thomas

NOTOMYS ALEXIS ALEXIS Thomas

Notomys alexis Thomas, Ann. Mag. Nat. Hist., 1922, (9) 9, p. 316.

Notomys alexis reginae Troughton, Mem. Qld. Mus., 1936, 11, p. 20.

This species is easiest of all to recognise. It is smaller in most dimensions than any other *Notomys*. The pelage is dense, comparatively short, and adpressed to the body. The colour of the dorsal surface is near to sayal brown (Ridgway's Color Standards), distinct in this respect from other species.

The type of *N. a. reginae* Troughton is available, and there does not appear to be any significant difference between it and a series of *N. a. alexis*, including three specimens collected by Stalker from the type locality, Alroy Downs, near Alexandra, Northern Territory.

The range is an area between the 10 inch and 20 inch isohyet, from the vicinity of Longreach, western Queensland, east at least to the Canning Stock route, Western Australia. This distribution is in the form of an arc to the north around the central area of Australia, whereas the range of *N. m. mitchellii* as defined here lies in the form of an arc to the south around the central area.

NOTOMYS ALEXIS EVERARDENSIS Finlayson

Notomys alexis everardensis Finlayson, Trans. Roy. Soc. S. Aust., 1940, 64, p. 133.

No specimen is available for examination of this form which was described from material collected in the vicinity of the Everard Range, South Australia. The outstanding feature is the presence of glandular areas both on the throat and the sternum. In describing this subspecies, Finlayson stated " The *gulo sternal glandular* area (pl.XV, fig.E) is highly characteristic and presents a combination of a distinct gular pit as in *cervinus* Waite with a well marked sternal tract of specialized hair as in *mitchellii*."

All available specimens of *N. mitchellii* (Ogilby) have distinct gular glands, but none has specialized hairs in the sternal area. However, it has been noted in fully mature specimens of all species with a gular gland that there may be some shining, possibly glandular, hairs beneath the lip of the gland. When a specimen in this condition is prepared as a cabinet skin, the tissues are straightened (not stretched) and the position of these shining hairs is then more or less between the fore-limbs.

This is the only record of *alexis* south of the central area of Australia.

NOTOMYS AMPLUS Brazenor

Notomys amplus Brazenor, Mem. Nat. Mus. Vict., 1936, No. 9, p. 7.

This species appears to be similar in size and appearance to *longicaudatus*, differing mainly in the presence of a gular gland instead of a sternal gland as in *longicaudatus*, and in the greater length of ear. It was described from two female specimens obtained over 60 years ago by Spencer from Charlotte Waters, Central Australia.

NOTOMYS FILMERI sp. nov.

(Plate 7, figures 4-6; figures 5 and 6)

Similar in size to *N. cervinus* (Gould) (=*P. aistoni* Brazenor). General colour above cinnamon-buff; bases only of hairs grey, then cinnamon-buff with dark tips dorsally. Sides of body and head paler, hairs mostly without dark tips. Upper lip, entire under surface, fore-limbs and lower sides of rear limbs pure white. Ears, in skin, dull brown, in life, flesh coloured, sparsely clothed

with short white hairs. Slightly more than proximal half of tail similar in colour to body ; distal portion dark brown above, white beneath, with small brush of hairs at tip. Gular gland present.

MEASUREMENTS (millimeters).—Head and body, 131 ; tail, 121 ; pes, 37 ; ear, 21.

SKULL.—Greatest length 30 ; greatest breadth 15 ; basal length 28 ; nasals 11 x 3 ; interorbital breadth 6 ; palate length 16 ; breadth outside M^2 7 ; breadth inside M^2 4 ; length upper molars 5 ; palatal foramina 6 x 1·5 ; diastema 7.

TYPE.—J. 10,316 ♂ in collections Queensland Museum. Collected by I. G. Filmer near Birdsville, south-western Queensland, November, 1957.

Four live male specimens of this species and three males and two females preserved in spirit were received from the Birdsville district. As already stated, all were collected after dark in sandhill country by using a torch to provide light and an insect net as a means of capture. The dominant dorsal colour of specimens is cinnamon-buff. This would appear to be the only species of *Notomys* in which all the hairs of the ventral surface are white to their bases.

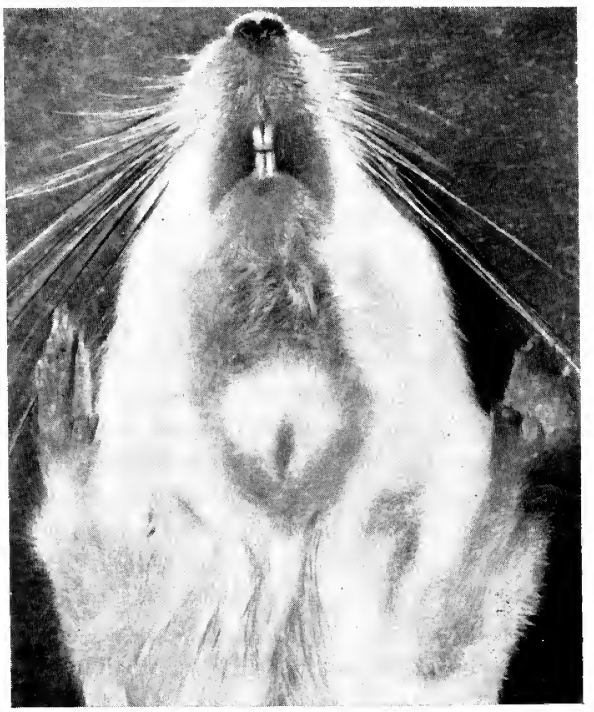


Figure 5. *Notomys filmeri* sp. nov. Showing circular gular gland.

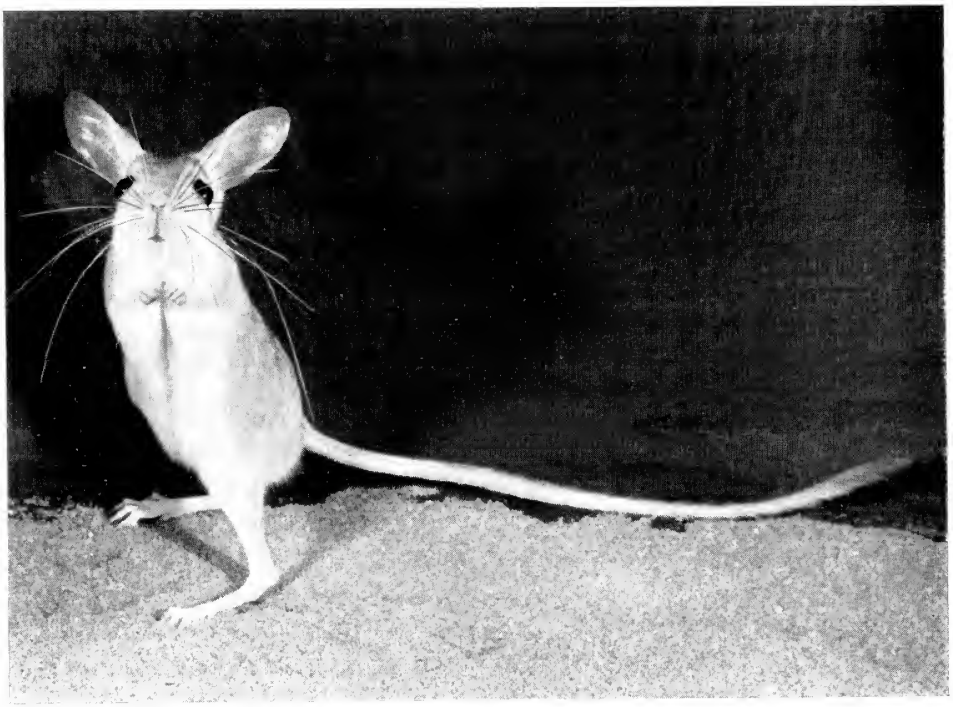


Figure 6. *Notomys filmeri* sp. nov.

Compared with *cervinus*, the skull of this species has the brain case less inflated : the rostrum is more elongate ; the zygomatic plate is wider and there is a well developed hook-like spine (short and straight in *cervinus*). The palatal foramina are narrower and reach only to a line joining the anterior edges of the first molars, and the mesopterygoid fossa is narrower.

The species is named for I. G. Filmer who collected the specimens.

NOTOMYS LONGICAUDATUS (Gould)

Hapalotis longicaudatus Gould, Proc. Zool. Soc. (Lond.), 1844, p. 104.

Notomys sturti Thomas, Ann. Mag. Nat. Hist., 1921, (9) 8, p. 537.

The absence of a gular gland and the presence of a sternal gland is a feature of this species. Mature individuals are larger in all dimensions than any other species of the genus with the exception of *amplus* in which a gular gland is present in both sexes.

The type locality is stated to be the vicinity of Moore River, Western Australia. Most specimens collected since Gould described the species have been obtained in Central Australia, from localities immediately north of the Macdonnel Ranges within the 10 inch isohyet.

N. sturti was described from a single example in poor condition " with the distal part of the fur singed off," making it impossible for Thomas to describe the colour. However, according to Thomas, it is very similar to *longicaudatus*, but " rather smaller." I have no hesitation in including the name in synonymy. Apparently, the specimen was collected by Captain Sturt's party in 1845. It was " captured in the Coonbaralba Range about 85 miles from Laidley's Ponds." This is in the vicinity of the present Menindie in western New South Wales.

NOTOMYS CERVINUS (Gould)

(Plate 7, figures 1-3 ; figures 7 and 8)

Hapalotis cervinus Gould, Proc. Zool. Soc. (Lond.), 1851, p. 127.

Podanomalus aistoni Brazenor, Mem. Nat. Mus. Vict., 1934, No. 8, p. 84.

Two live males and a female preserved in spirit of this species were received from the vicinity of Birdsville, south-western Queensland. The specimens were collected at the same time and place as examples of *filmeri* sp. nov.

The gular gland is absent, but a round sternal gland, similar to that of *longicaudatus*, is present in both of the males and in the preserved female available. In describing *aistoni*, Brazenor stated that this gland was present only in males. Specimens are pale pinkish-cinnamon above, but the effect of the long dark tips to many of the hairs is to give an over-all greyish appearance, distinct from the rich cinnamon-buff of *filmeri* sp. nov.

The type is stated to have been collected at a point about 29° 6′ S., 141°E. This is on the border of South Australia and New South Wales not far south of the Queensland border. So far, it would seem to have been collected only in localities within the 10 inch isohyet, but it is not possible to state how widespread the species may be within this large area of Central Australia.

Guiler (1959) has recorded six specimens of this species from Tasmania. He stated that all were captured alive and that the six comprise an adult male and adult female, together with four half-grown young. According to the report, the specimens were collected by Mr. M. Turner in a damp gully, where the rainfall is more than 40 inches per annum, in the Western Tiers near Westbury, Tasmania. I agree with Guiler in his statement that " It is impossible at present to assess the status of the

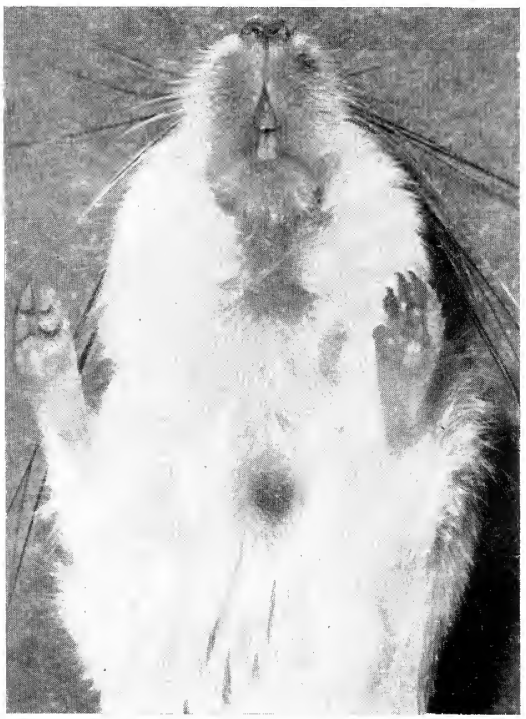


Figure 7. *Notomys cervinus* (Gould). Showing small sternal gland.

species in Tasmania and it is equally difficult to account for the presence of these animals in the State." This is a species of Central Australia, and in my view, it is very doubtful if any member of the genus occurs naturally in Tasmania.

SPECIES OF DOUBTFUL STANDING

The following two species are of doubtful status and require to be investigated. They appear to have no real standing and are not included in my total of six species of *Notomys*.

Notomys aquilo Thomas, Ann. Mag. Nat. Hist., 1921, (9) 8, p. 540.

This name was provided for a single specimen said to have been collected at " Cape York, N. Queensland " by J. T. Cockerell and purchased, presumably by the British Museum, from a dealer named Higgins. The name of the collector J. T. Cockerell is well known, especially to anyone who has to do with collections of birds, and he is known to have been unreliable in the matter of localities. There is no other record of *Notomys* from any part of Cape York Peninsula, and the nearest certain record of the genus to Cape York is the vicinity of Longreach, western Queensland, about 900 miles to the south-west (*N. a. alexis*).

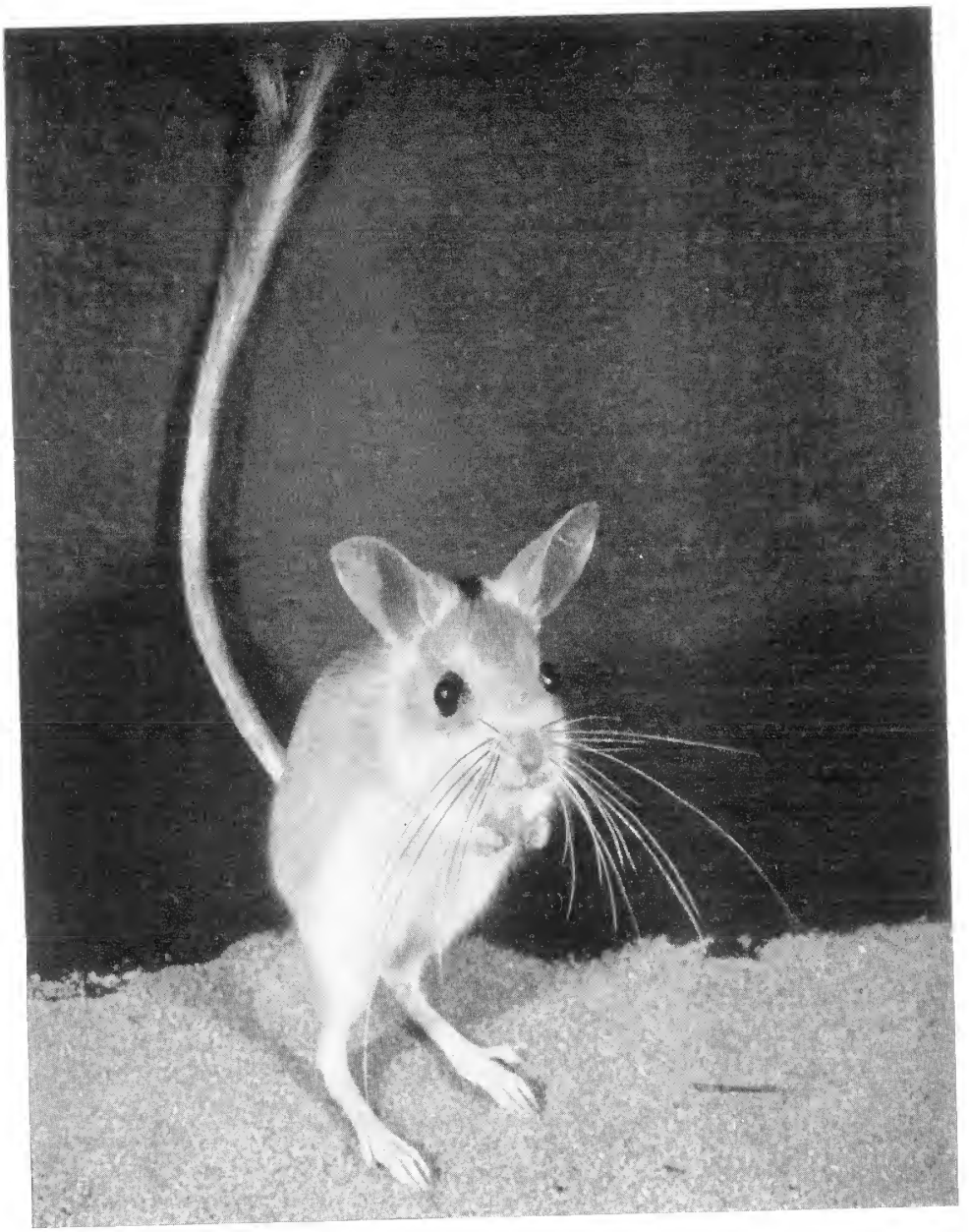


Figure 8. *Notomys cervinus* (Gould).

It is unfortunate that a name has been provided for a specimen of this nature ; it will probably prove to be referrable to one of the earlier named species of the genus.

Notomys mordax Thomas, Ann. Mag. Nat. Hist., 1922, (9) 9, p. 317.

A single skull in the Gould collection in the British Museum, stated to be from the " Darling Downs, S. Queensland " was provided with this name. No complete specimen of the genus *Notomys* has yet been recorded from any locality in the vicinity of the Darling Downs. Gould's field-worker, John Gilbert, collected for some time in the area, and it seems to me unlikely that a man of Gilbert's calibre would include in his collections a single skull labelled " Darling Downs." Charles Coxen, a brother-in-law of John Gould, resided on the Darling Downs for a time as one of the first permanent settlers, and probably he would know that a small skull without the skin would be of no use to Gould.

The nearest certain records of the genus to the Darling Downs is the vicinity of Longreach, about 600 miles to the north-west (*N. a. alexis*), and Birdsville, about 900 miles directly to the west (*N. cervinus* and *N. filmeri* sp. nov.).

It is to be regretted that Thomas considered it necessary to provide a name for a single skull of a recent mammal which, in my opinion, is accompanied by a doubtful locality.

LITERATURE CITED

Brazenor, C. W., 1934. Mem. Nat. Mus. Vict., No. 8, p. 83.

Finlayson, H. H., 1939. Trans. Roy. Soc. S. Aust., 63, p. 103.

————, 1960. Trans. Roy. Soc. S. Aust., 83, p. 79.

Guiler, E. R., 1959. Aust. Journ. Science, 21, p. 220.

Ogilby, W., 1841. Trans. Linn. Soc. Lond., 18, p. 130.

Tate, G. H. H., 1951. Bull. Amer. Mus. Nat. Hist., 97, p. 262.

Waite, E. R., 1897. Proc. Roy. Soc. Vict., 10, p. 117.

————, 1900. Ann. Mag. Nat. Hist., (7) 5, p. 223.

EXPLANATION OF PLATE VII

Notomys cervinus (Gould)

Fig 1. Ventral view anteriorly to show sternal gland. X2.

Fig 2. Dorsal view of skull. Nat. size.

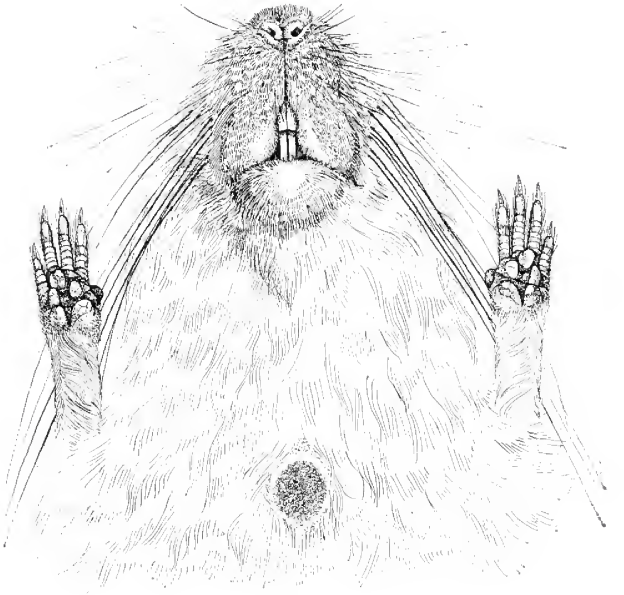
Fig 3. Ventral view of skull. Nat. size

Notomys filmeri sp. nov.

Fig 4. Ventral view of type anteriorly to show gular gland. X2.

Fig 5. Dorsal view of skull of type Nat size.

Fig 6. Ventral view of skull of type. Nat size.



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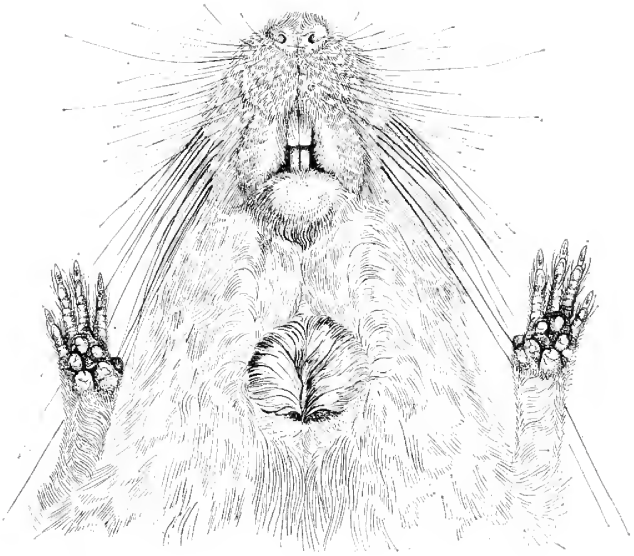

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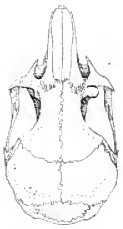

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6.

STONE CEREMONIAL GROUNDS OF THE ABORIGINES IN THE DARLING DOWNS AREA, QUEENSLAND

ALAN BARTHOLOMAI AND STANLEY BREEDEN

Queensland Museum

The area known as the Darling Downs, west of the Main Divide in south-eastern Queensland, consists in the main of extensive deep deposits of alluvium. There are occasional small outcrops of basalt, and at one locality of Mesozoic Sandstones, and it is somewhat surprising to find that rocks from these outcrops have been used by the Aborigines to form ceremonial grounds. In eastern Queensland, most of the tribes or groups of tribes formed their ceremonial grounds, or bora rings as they are commonly known, with soil. In general, these consist of a large circle about 80 feet in diameter with the circumference raised about two feet above the general level. At a distance of perhaps 200 or 300 yards, a second, smaller and less well-defined circle is present where initiates were prepared for ceremonies. Between the two circles there is often a pathway still well preserved.

Grounds formed with soil are not uncommon in coastal areas, east of the Main Divide and similar grounds were formed in the Darling Downs, where great depth of soil and extensive portions of country clear of high vegetation were available. Ceremonial grounds formed with rocks are known in western New South Wales and Queensland (Black, 1950, Wood Jones, 1925), and in north Queensland (McConnel, 1932), but the occurrence of a number in and near the Darling Downs is unexpected. One has already been recorded (Winterbotham, 1949), and these notes are for the purpose of recording additional examples.

We wish to express our appreciation of the advice and assistance rendered by Mr. B. G. Gilbert of Cawdor, Messrs. G. and K. Kerr of Kogan, Mr. C. Schull of Oakey, Mrs. K. Emmerson of Chinchilla and Mr. B. Ford of Miles.

CEREMONIAL GROUNDS

CAWDOR. In April, 1960, the Director of the Queensland Museum was informed by Mr. B. G. Gilbert of the presence of a stone ceremonial ground on his property. This was immediately inspected, and in June of the same year, the ground was mapped and photographed by us (Plate VIII).

Cawdor is only a few miles west of the city of Toowoomba, which is situated on the Main Divide about 85 miles west of Brisbane. The ceremonial ground is in a wide, shallow, natural amphitheatre with a gully and creek at the western extremity

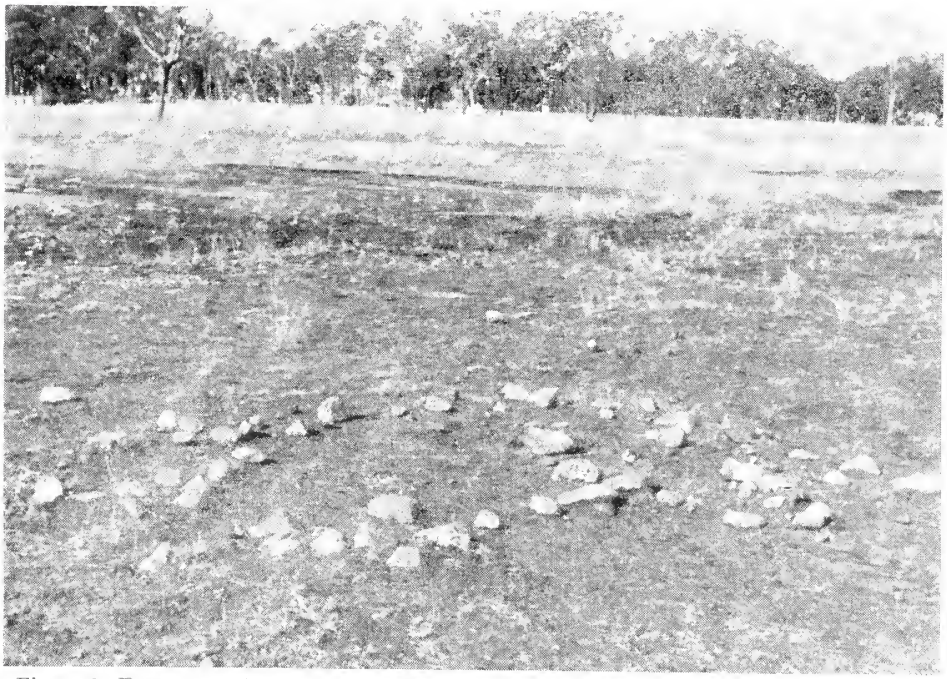

Figure 1. Eastern portion of ceremonial ground at Cawdor with remnant of ring of lichen-covered basaltic rocks in foreground.

Figure 2. Portion of Kogan ceremonial ground with ring of sandstone rocks in foreground.

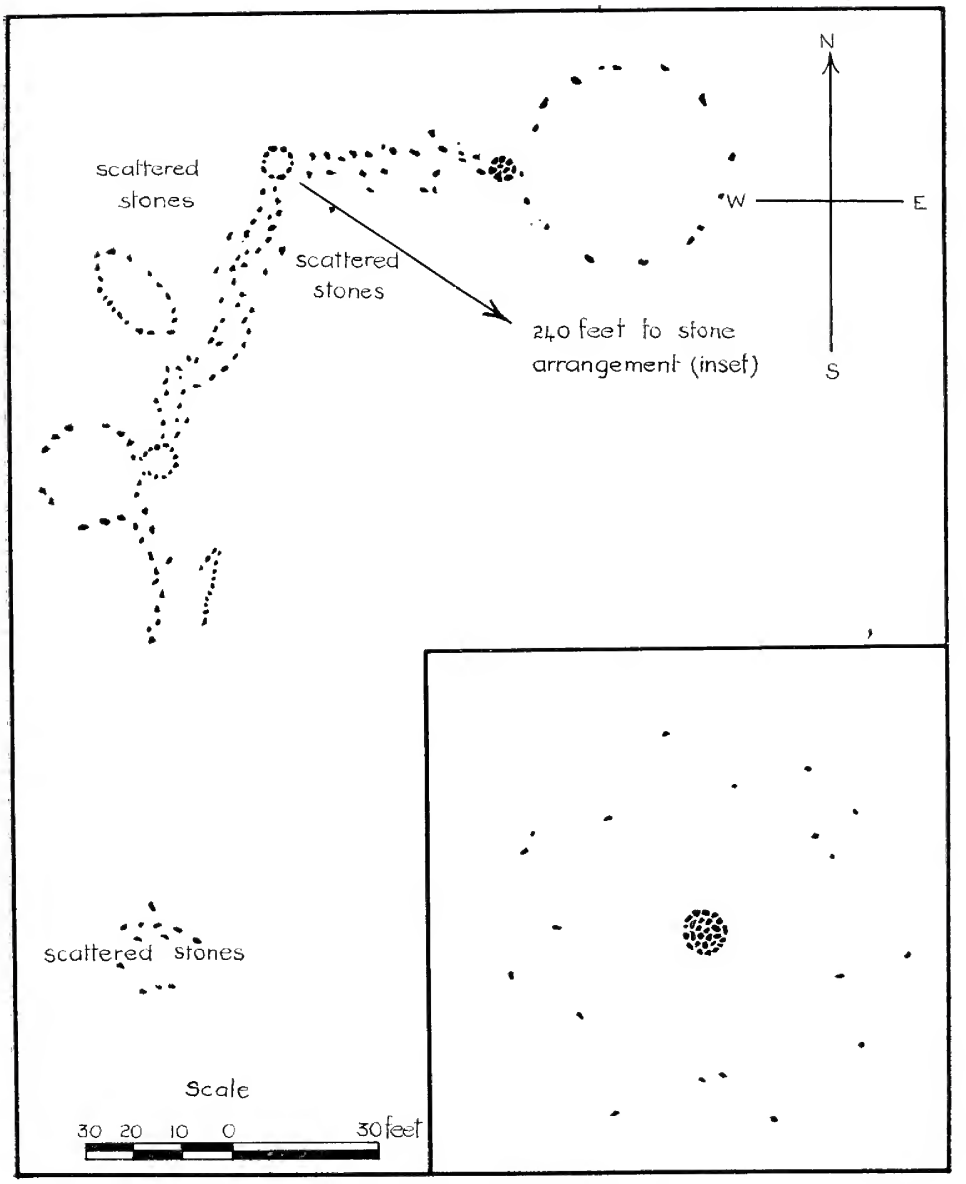

Figure 3. Plan of Kogan ceremonial ground.

and a less well-defined gully to the east, surrounded by low hills. Basalt outcrops in the centre where the soil cover is either absent or finely distributed. As a result, vegetation is absent except for a sparse cover of grasses where soil is present.

A little more than a century has passed since the first white settlement of the Darling Downs. Cultivation and grazing have subsequently been extensively practiced. Over such a period of time it is not surprising that the ceremonial ground has deteriorated, although some of the original structures remain moderately well-defined. Where a rock is in its original position, the exposed surface is generally covered with a grey-green lichen. Rocks were originally placed on the surface, and in certain areas of the ground, deposition of soil around them has resulted from the obstruction to the flow of the silt-laden waters from the surrounding hills. This process has helped to maintain the distribution of the stones, except where the run-off water has attained sufficient momentum to either partially disrupt or in some cases, destroy portions of the structures. Movements of stock have created minor alterations to the arrangement, while fencing operations have destroyed much of the northern portion.

The most conspicuous feature in the ceremonial ground is the outcrops of basalt, and in several cases these show evidence of having provided materials used in the construction. Joint surfaces are now exposed and one outcrop has been completely denuded of loose rock. Almost invariably, the largest rocks used in the arrangement remain in close proximity to the parent outcrop, and several such outcrops form the focal points for series of concentric circles. Smaller rocks have been utilised to construct the single circles and pathways as well as the low stone mounds which occur in the ground. A regularly spaced series of mounds connects the more isolated south-east portion with the main body of the structures, while others are placed just outside the ceremonial ground to provide rocks when maintenance became necessary.

KOGAN. During August, 1960, further investigations were conducted in the Darling Downs, and at Kogan, 170 miles west of Brisbane, an extensive ceremonial ground was visited. The ground is on the property of Mr. G. Kerr, to the south of Kogan, on the crest of a low, lightly timbered ridge. The situation is similar to that at Cawdor. There are natural clearings, with thin veneers of soil associated with Mesozoic sandstones, limiting vegetation to sparse grasses.

The arrangement is mostly confined to two partially connected clearings where the sandstones reach, but do not outcrop above, the surface. Much of the original structure has been obscured by a large quantity of rock derived from weathering of the exposed sandstones, although several rings and portions of a pathway are still apparent. There is a concentric arrangement present, but in this instance the central

Figure 4. Sinuous mound of rocks, 81 feet in length, at Oakey Creek.

mass is a mound of stones and not an exposed outcrop, as at Cawdor. Two circles and a connecting pathway are isolated within a lightly timbered area, at a distance of about 120 yards north-west of the main clearing.

A single ring measuring seven feet by six feet is present on this property about one half-mile south-south-east of the ceremonial ground; there is no obvious connection between them. Approximately seven miles south of the main Kogan ground, on the crest of a low sandstone ridge on the neighbouring property, is a large oval arrangement. The structure measures fourteen feet by nine feet and is very well preserved.

Oakey. At Oakey Creek, about five miles to the east of the township of Oakey is a stone arrangement of a different character. This is a large mound of rocks, sinuous in form, positioned on an outcrop of basalt. The 81 foot long mound tapers in both plan and elevation, attaining a maximum height of $2\frac{1}{2}$ feet.

In general the rocks associated with this structure are larger in size than those used for the construction of the rings and pathways at either Cawdor or Kogan. Mounds of this size have been described from other parts of Australia and there is much speculation as to their function (Thorpe, 1924, Piddington, 1932). They have been described from south-west Queensland (Dow, 1938), but in most cases the relative dimensions of this mound differ from those previously recorded.

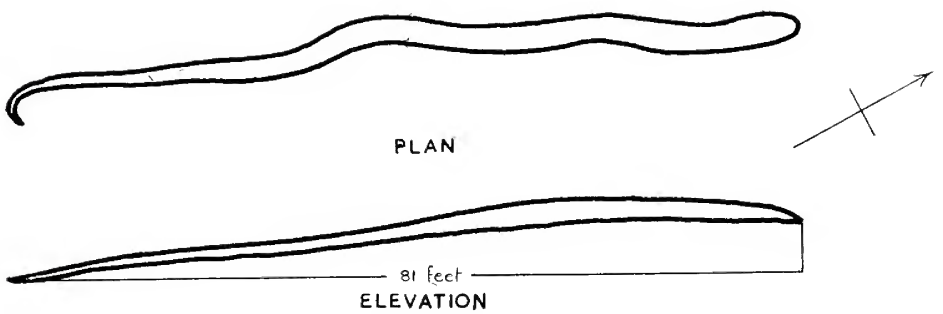

Figure 5. Plan and elevation of sinuous mound of rocks, Oakey Creek.

LITERATURE CITED

Black, L. (1950). Stone Arrangements. Paterson Brokensha Pty. Ltd., Perth, W.A., pp.1–48, pls. 172–194.

Dow, E. B. (1938). Aboriginal Ceremonial Cairns near Broken Hill. Oceania, IX, no. 1, pp. 30–36, pl. 1.

McConnel, Ursula (1932). Totem Stones of the Kantyu Tribe, Cape York Peninsula, North Queensland. Oceania, II, no. 3, pp. 292–295, pls. I–II.

Piddington, R. (1932). Totemic System of the Karadjeri Tribe. Oceania, II, no. 4, pp. 373–400, pls. I–III.

Thorpe, W. W. (1924). Heliolithic Evidence in Australia, Tasmania, and New Guinea; and Traces of Other Superior Cultures. Rep. Aust. Ass. Advanc. Sci., XVII, pp. 484–490.

Winterbotham, L. P. (1949). Aboriginal Stone Arrangements, Darling Downs Area, S.E. Queensland. Mankind, IV, no. 2, pp. 68–69, pl. F.

Wood Jones, F. (1925). The Ordered Arrangement of Stones Present in Certain Parts of Australia. J. R. Anthrop. Inst., LV, pp. 123–128, pl. 21.

S. G. Reid, Government Printer, Brisbane.